

HYPNOTIZABILITY AS A FUNCTION OF NONHYPNOTIC EXPERIENCES¹

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The relationship between various subjective experiences and susceptibility to hypnosis was studied in 2 samples of female college students, totaling 102. The subjective experiences were registered by the Experience Inventory, a questionnaire developed earlier for this purpose. Hypnotizability was determined by administering objective hypnotic scales individually. Correlations between hypnotizability and the total Experience Inventory score as well as a composite score of selected items were significant in both samples, but the latter failed in predicting hypnotizability better than the total score. Items of subjective experiences significantly related to hypnotizability in the total sample were analyzed in terms of the personality dimensions implied.

The search for personality correlates of hypnotic susceptibility is as old as the history of scientific hypnosis itself. Yet the results of these efforts have been astonishingly meager. In his review, Hull (1933) characterized the experimental attempts to discover relationships between suggestibility and character traits as indecisive. Twenty to 25 years later the reviewers have little more to add. Weitzenhoffer (1953) denotes the area of personality traits and suggestibility as one of the most ambiguous. He does cite some evidence suggesting positive attitudes as favoring suggestibility, and states that needs and motivation may be related to suggestibility in various ways. Pattie (1956) declares that today we hardly know more about what kind of person is susceptible to hypnosis than did Abbé Faria in 1819 when he thought that the "liquidity of the blood" had something to do with it. He concludes:

Susceptibility is not a sign of low intelligence; there is probably a sex difference in favor of the females but so small as to be of merely academic interest; and older persons are not as susceptible as younger ones. Beyond these facts there is no certainty, one man's findings not being confirmed by the next investigator.

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What strikes the observer of subjects in hypnosis is, of course, the amazing and often dramatic *behavior* they display, apparently in response to words only. However, persons who themselves have been hypnotized or who have carefully interviewed other persons after they have been hypnotized, know that from the subject's point of view hypnosis is more than anything a remarkable *experience*. Although traits, attitudes, and needs, as well as intelligence, sex, and age, are important aspects of personality, it has puzzled the writer for some time that students of hypnotic susceptibility have not been more interested in the subjective experiences of the hypnotized subject, especially his experiences outside hypnosis that may be related to hypnosis and hypnotizability. A more phenomenological approach has proven valuable in other areas of psychology, and ought to be attempted in the field of hypnosis as well.

A first step in this general research was the construction of an instrument for the registration of nonhypnotic experiences that presumably would be related to hypnotizability. The Experience Inventory, developed for this purpose, has been described in a previous article (Ås, O'Hara, & Munger, 1962). An article by Shor (1960) on the frequencies of naturally occurring "hypnotic-like" experiences appeared during the preparation of the inventory. Since many of his items were very much in line with some of the thinking behind the present study, 18 of Shor's items as

well as his instructions were incorporated in the Experience Inventory.

Quite recently Shor, Orne, and O'Connell (1962) reported the relationships between their Personal Experiences Questionnaire and hypnotizability. In a mixed-sex sample of 29 subjects, frequency and intensity scores of responses to the 129-item questionnaire were related to scores on the Stanford Hypnotic Susceptibility Scale (Weitzenhoffer & Hilgard, 1959). While the frequency scores did not give positive results, 45 of the items scored for intensity of experience gave significant phi coefficients with hypnotizability. A composite score of these items in a new sample of 25 subjects correlated significantly with the Stanford scale and an overall rating of hypnotic depth ($r = .46$ and $r = .44$).

METHOD

Problem

The purpose of the present study is twofold: to determine the value of the Experience Inventory or components of it as an instrument predictive of hypnotizability, and to analyze the relationships between hypnotizability and the experiences measured by the Experience Inventory with a hope of reaching some understanding of the aspects of personality involved.

Subjects

The subjects were 102 female college students at Stanford University. They were members of classes in introductory psychology and had a wide variety of undergraduate majors. They volunteered to serve as subjects in experiments involving hypnosis and received some course credit in return. The subjects were recruited from two classes in two consecutive quarters. Fifty were studied in the Fall of 1960 and 52 in the Winter of 1961.

Procedure

The first part of the present investigation was planned as a replication study. First the relationships between the Experience Inventory responses and hypnotizability were determined in the sample of subjects studied in the Fall of 1960. On the basis of these results a prediction was made for the sample of subjects to be studied in the Winter of 1961, on which identical procedures would be applied. In the second part of the study the two samples were combined and a tentative analysis made of the possible personality aspects implied in the subjective experiences related to hypnotizability.

Experience Inventory. The Experience Inventory (As et al., 1962) is a questionnaire consisting of 60 items. The items are assumed to give information on nine tentatively selected category variables, but are

presented randomly to the subjects. The categories are:

- A. Altered state—fading of generalized reality orientation
- B. Tolerance for logical inconsistencies
- C. Role taking
- D. Dissociation—exclusion of distracting stimuli
- E. Willingness to relinquish ego control
- F. Tolerance for regressive experiences
- G. Constructive use of regression
- H. Peak experiences
- I. Basic trust—interpersonal relations

As examples, some of the items are listed below. The preceding letter indicates the category:

- (A) Have you ever had the experience of doing some task in the middle of the night (e.g., jotting down a note, answering a phone call) with no memory the next morning of having done so? Yes No ?
- (B) Do you think there are events and things which cannot be ultimately explained logically? Yes No ?
- (C) Do you feel that regardless of what happens around you, you stay and feel pretty much the same? Yes No ?
- (D) Have you ever had the feeling that a part of your body was not really a part of you? Yes No ?
- (E) Would you like to find a great purpose, goal, or leader in life, to which you could feel dedicated? Yes No ?
- (F) Do you enjoy "wild" parties? Yes No ?
- (G) Have you ever found a sort of fulfillment of yourself in creating something, as in crafts, science, writing, art, or music? Yes No ?
- (H) Have you ever had the experience of being caught up by music or dancing so that you became enraptured by it and had it live and express itself through you so that you as yourself seemed to cease to be during it? Yes No ?
- (I) Are your feelings toward one or both of your parents usually negative? Yes No ?

The subjects were asked to answer by circling the appropriate answer. The single items were scored by assigning the value one to an item if it was answered in the affirmative of the category variable assumed to be tapped by the item, and zero if answered in the negative. Question marks were given the value of one-half.

The Experience Inventory was administered to the total classes of students of which the subjects were members, in one of the first class hours in the quar-

TABLE 1
CORRELATIONS BETWEEN EXPERIENCE INVENTORY
SCORES AND HYPNOTIZABILITY

	Fall 1960 (N = 50)	Winter 1961 (N = 52)
Total score	.36**	.31**
16-item score (Fall)	.68**	.29*
17-item score (Winter)	.27*	.59**

Note.—Pearson r .

* Significant beyond 5% level.

** Significant beyond 1% level.

ter, prior to the hypnotic experiments. The scoring also took place prior to and independent of the hypnosis experiments.

Odd-even reliability coefficients (Pearson r) were computed for the 60-item scale for the total class samples of 176 females and 295 males, giving the values of $r = .74$ and $r = .76$, respectively.

Hypnosis. The subjects participated in the hypnotic experiments individually in two sessions on two consecutive days. Different experimenters served as hypnotists² on the two days, without previous knowledge about the subjects or their responses on the Experience Inventory.

On the first day Form A of the Stanford Hypnotic Susceptibility Scale (Weitzenhoffer & Hilgard, 1959) was used. On the second day the Consolidated Scale of Hypnotic Responsiveness³ was administered. This scale has some motor items (such as hand lowering, arm rigidity, and arm immobilization) in common with Form B of the Stanford scale, but also contains more "cognitive" items, such as dreams, age regression, and hallucinations. The score varies from 0 to 12, the value 1 being assigned to each item passed. The Consolidated scale correlates $r = .83$ with Form A of the Stanford scale.

A preliminary study (Ås, 1960) showed that the experience categories correlated somewhat better with the Consolidated scale than with a combination score based on the Stanford scale and the Consolidated scale. A better balance of motor and cognitive items in the latter also makes it more meaningful as a hypnosis criterion to be related to the rather cognitive domain of subjective experiences. In the present study, therefore, the score on the Consolidated scale is the measure of hypnotizability.

RESULTS

Experience Inventory as a Predictor of Hypnotizability

Fall sample. The first measure selected for correlation with hypnotizability on the first

² Hypnotists were A. M. Weitzenhoffer, Mary R. Roberts, B. M. Sjoberg, Jr., and the author.

³ This is an experimental scale with objectively defined scoring criteria. It was designed by A. M.

sample of 50 subjects was the sum of scores of the 60 Experience Inventory items. The correlation between the total score and the Consolidated scale was $r = .36$, which is significant at the 1% level (Table 1). Thus, from the beginning, a relationship was indicated.

To get a more detailed account of this relationship, biserial correlations were computed between the single items⁴ of the Experience Inventory and the Consolidated scale. The correlation coefficients are represented by the white bars in Figure 1.⁵ There are 20 coefficients around zero (between $-.10$ and $.10$). Of the remaining 36 coefficients, 27 or 75% are positive and 9 or 25% are negative.

A more accurate estimation of the relationship between hypnotizability and subjective experiences may be derived by inspecting the significance levels of the biserial correlations. Of the 27 positive correlations ($r_{bis} > .10$), 12 were significant at or beyond the 5% level, and an additional 4 between the 5% and 10% levels. Of the 9 negative correlations, only 1 was significant below the 5% level, and 2 others just below the 10% level.

The white bars in Figure 1 show that a majority of the larger positive correlations in the Fall sample are found in Category A ("Altered state") and Category C ("Role taking"), with a couple of such correlations in Category E ("Relinquishing ego control") and one here and there in other categories.

Predictions for the Winter sample. It was predicted that the total score on the Experience Inventory would be significantly correlated with hypnotizability in the sample studied during the Winter of 1961, because this was a direct replication of the Fall procedures. As seen in Figure 1 quite a few of the single item correlations in the Fall sample

Weitzenhoffer, and is currently in use at the Stanford Laboratory of Human Development.

⁴ For correlational purposes items on the Experience Inventory answered with the question mark were counted as +.

⁵ An earlier analysis (Ås, O'Hara, & Munger, 1962) showed that the answer percentages (percentage of subjects answering "Yes" or "No" to a question) in a large sample of subjects were over 90 or below 10 for 4 out of the 60 Experience Inventory items. With practically no discriminating ability these items were considered unfit for biserial correlation, and hence excluded.

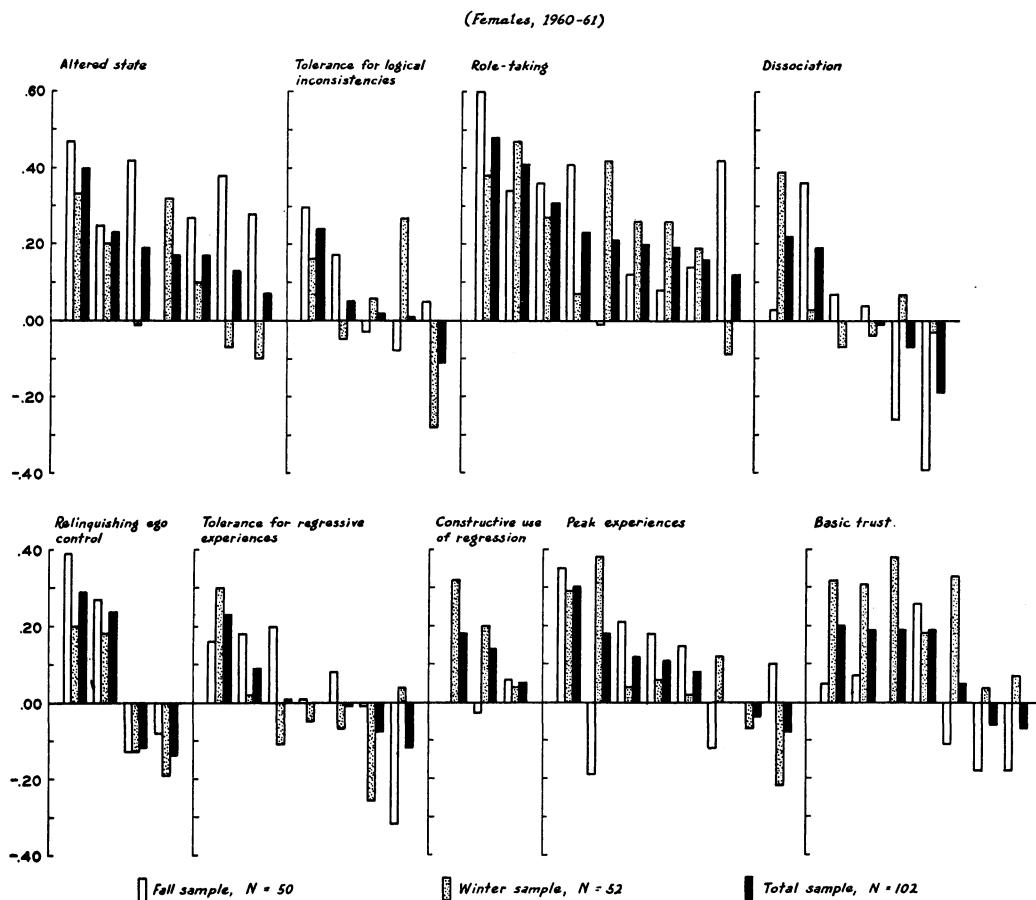


FIG. 1. Biserial correlations between single items on Experience Inventory and hypnotizability.

were zero or negative. In an effort to develop a measure that would capture most of the items contributing to the overall positive relation to hypnotizability without being hampered by the negative or noncontributing items, the scores on the 16 items with positive correlations beyond the 10% level of significance were added together in a composite score. This 16-item composite score correlated $r = .68$ (Pearson) with hypnotizability in the Fall sample. Because such a composite score would capitalize on the chance errors involved in the distribution of correlations in the Fall sample, it was expected that its correlation with the criterion would be somewhat lower in a new sample. However, the prediction was that the correlation between the 16-item composite score and hypnotizability would remain significant in the

Winter sample as well, and would exceed the correlation from the total scale.

Winter sample. This sample consisted of 52 subjects, and was therefore also comparable in size with the Fall sample.

As shown in Table 1 the correlation between the total Experience Inventory score and the Consolidated scale was .31, which is significant at the 1% level. Thus, the first prediction was verified.

Table 1 further shows that the correlation between the 16-item composite experience score and hypnotizability in the Winter sample was $r = .29$ with a corresponding $p = .02$. Thus, the second prediction was not verified, because although significant, the correlation was no higher than that of the total score. The drop in correlation from .68 to .29 suggested that the chance errors in the sampling

of the single experience items, on which the composite score capitalized, were fairly large.

The biserial correlations with hypnotizability for the single Experience Inventory items were computed for the Winter sample as well. As a check on the composite score prediction reported above, the 17 items giving biserial correlations with $p < .10$ in the Winter sample were added into a composite score, which correlated $r = .59$ with the Consolidated scale in this sample (Table 1). This 17-item composite score was then correlated with hypnotizability in the Fall sample, and the result was $r = .27$ ($p = .03$). Thus, the correlation of this new composite score also remained significant when computed on a new sample, but the drop in correlation from the one sample to the other was again clear and very similar to the one found for the 16-item score used in the original prediction. In neither case did the selected shorter scale predict better than the total scale.

The biserial correlations with hypnotizability for the single experience items in the Winter sample are represented by the dotted bars in Figure 1. The overall picture of positive correlations is about the same as for the Fall sample represented by the white bars. A closer inspection also reveals some differences. For instance, in the "Altered state" category there are some items showing high correlations in the Fall sample and very low ones in the Winter sample. In the category "Basic trust" the positive correlations in the Winter sample clearly exceed those in the Fall sample.

DISCUSSION

The fact that the total score of the Experience Inventory is significantly related to the hypnotizability measures in both samples, and essentially with the same magnitude, suggests that some relationship between the two sets of data has been found. As to the nature of this relationship, however, the rather large drops in the cross-correlations of the composite scores, based on the highest correlating items in one of the samples, suggest that only to some degree is the common correlation with hypnotizability in the two samples carried by a restricted number of items which separately show significant correlation with the criterion in both samples. The number of such items in

the present case is only five. To quite some degree the common correlation is caused by a series of items, the separate correlations of which vary quite a bit from sample to sample, so that they may show up as significant in one case but not in another. In spite of this sample variation, they are to a smaller or larger degree essentially positively correlated with hypnotizability, and added together, their contribution to the overall correlation common for the two samples counts. As evidence for this one may consider the correlations of the residual items not included in the 16-item composite score which was tentatively chosen as one of the prediction statistics. While the composite score of these residual items correlate only $r = .08$ in the Fall sample, the correlation in the Winter sample is $r = .26$, that is, almost the same correlation as for the 16-item score. For the 17-item Winter sample score the corresponding correlations are $r = .08$ and $r = .34$. This also shows that as an attempt to develop a measure that would capture the bulk of the positive relationship between the total experience score and hypnotizability, the choice of the 16-item score was not particularly successful. In future research, attempts will be made to develop measures that are more successful in this respect.⁶

On the other hand, it is also very possible that the nature of the relationship between hypnotizability and subjective experiences is such that a score of a restricted number of items always predictive of hypnosis cannot be found. Thus, the hypothesis that suggests itself at the present level of research is that for different subjects there are somewhat different areas of subjective experiences that are re-

⁶ An analysis of a new sample of 50 male students has already been made. The correlation between the total Experience Inventory score and the Consolidated scale was $r = .47$, giving further confirmation of the earlier results. A composite score of 23 items with biserial correlations significant beyond the 10% level in the sample of 102 females used in the present study correlated .51 in this sample and .35 in the new male sample. A composite score of the 37 items that separately gave positive biserial correlations in the present sample ($N = 102$, composite $r = .49$) correlated .48 in the new sample. The correlations of this latter composite score does not drop from one sample to the other, but it still does not predict hypnotizability better than the total score.

lated to hypnotizability. In other words, there would always be a relationship between hypnotizability and the broader range of subjective experiences as represented by the Experience Inventory, but from group to group there would be differences in the subareas of experiences most saliently related to hypnotizability.

Hypnotizability and Personality

To arrive at a basis for a tentative analysis of the personality aspects implied in the subjective experiences related to hypnotizability, the two samples described above were combined ($N = 102$) and the biserial correlations between the single experience items and the Consolidated scale were computed. These correlations are represented by the black bars in Figure 1. Of the 41 positive correlations, 14 are significant at or beyond the 5% level, with 5 of them also significant beyond the 1% level. In addition, 9 correlations have p values between .05 and .10. In the present exploratory phase of the research these 23 items were selected as the basis for the tentative analysis in terms of personality aspects to be given below.

As seen in Table 2, 5 of the 23 items significantly related to hypnotizability in the total sample were also significant in the two subsamples of 50 and 52 subjects, respectively. Twelve items were significant in one sample, and positive (from .05 to .25) without reaching significance in the other sample; seven items had a relatively large correlation in one sample and around zero correlation (from $-.01$ to $.05$) in the other sample.

In Table 2 the 23 significant items have been grouped according to the psychological characteristics which at face value seemed to be most saliently represented. These characteristics are similar to some of the categories in the Experience Inventory, but also to some extent cut across and combine these category variables.

In the first group of nine items listed in Table 2 the first three items may be said to reflect social influencibility.⁷ The next two

⁷ It is of interest to note that in a recent factor analysis, a test of social influencibility was the only test among a series of pencil-paper personality tests that showed some loading on the factor defined by the hypnotic items (Moore, 1961).

items have to do with experiencing unreal things as real, that is, having the imagination take on reality character. The last three items cover experiences of mental absorption to a degree where one becomes oblivious to the surroundings and where the state of consciousness becomes temporarily altered or takes on a new reality in itself. These have been called peak experiences. All the experiences represented by the items in the first group have a role taking aspect to them. *Role absorption* is proposed as a better term for what these experiences have in common.

The second large group of significant items represents different kinds of unusual experiences that the subjects have had. Some of these experiences imply amnesia for activities completed in sleep or during absentmindedness. Several experiences in this group seem to imply a certain dissociated mental state and in some cases a tolerance of phenomena known to be logically inconsistent. A certain antirationality is also represented. It is difficult to find a short term covering what these items have in common other than representing *experiences of incidents that are unusual or different and where the consciousness is somehow more or less altered*.

Three items from the category *Basic trust* are listed as a smaller group, representing positive feelings toward one or both parents, the wish to experience closeness with people, and the opinion of oneself as an optimist rather than a pessimist.

Two remaining items represent the wish to find a great purpose, goal, or leader in one's life to which one could feel dedicated, and admission that there have been persons in one's life outside the family who have influenced one a great deal or who have had a certain "grip" on oneself. These items could perhaps be said to reflect a *streak of discipleship*.

Three items mentioned above in connection with other groups could possibly constitute a group by themselves. The willingness to be influenced by others, the wish for the purpose, goal, or leader to feel dedicated to, and the wish to get beyond the world of logic and reason and experience something new and different have in common a *willingness to relin-*

quish a certain ego control for the sake of some new experience.

A previous article (Ås et al., 1962) reported a factor analysis of a correlation matrix of 24 items representative of the Experience Inventory, selected without regard or knowledge about relationships to hypnotizability. Two main factors were found, role absorption and the experience and tolerance of unusual experiences, the latter factor also representing some regressive elements. With less secure evidence the additional factors of discipleship and social influencibility were

mentioned. Only 10 of the 24 items, representing seven categories, ended up in the present series of 23 items showing significant correlations with hypnotizability. It is therefore all the more remarkable that we find essentially the same psychological dimensions represented. This also shows that the theoretical notions underlying the items making up the earlier factor matrix were useful guideposts in the search for empirical correlates of hypnotizability.

The main feature in the first group of significant items was role taking. However, a

TABLE 2
EXPERIENCE INVENTORY ITEMS CORRELATING SIGNIFICANTLY WITH HYPNOTIZABILITY

Item content ^a	Total sample (N = 102)	Fall (N = 50)	Winter (N = 52)
Role absorption			
Experiencing change in self-feeling with change in social situation	.23**	.41**	.07
Not feeling of being the same regardless what happens around	.31***	.36**	.27*
Not against being influenced by others	.24**	.27*	.18
Having imagined something so it appeared real ^b	.20**	.12	.26*
Having told a story with elaborations to make it sound better, then having the elaborations seem as real as the actual incidents	.48***	.60***	.38**
Having recollected a past experience with reality-like clarity and vitality ^b	.21**	-.01	.42***
Having been completely immersed in nature or in art with sweeping feelings of awe, inspiration, and grandeur ^b	.30**	.35**	.29*
Having been so absorbed in reading that one "lived" the story almost like real ^b	.19*	.08	.26*
Having experienced "becoming" the character when acting in a play ^b	.41***	.34**	.47***
Experience and tolerance of altered states and unusual incidents			
Having carried on real conversation with another person while asleep ^b	.19*	.42***	-.01
Having completed some task during the night with no memory in the morning of having done so ^b	.23**	.25*	.20
Having been so absentminded as to complete tasks without awareness ^b	.17*	.00	.32**
Having gone into a benumbed or serene state of consciousness by focusing hard at something ^b	.40***	.47***	.33**
Having experienced the walls or ceiling as changing, although knowing this impossible	.24**	.30**	.16
Having felt the "mind" going apart from the body ^b	.22**	.03	.39**
Having experienced the feeling of body parts moving involuntarily ^b	.19*	.36**	.03
Wanting new and different experiences beyond logic and reason	.23**	.16	.30*
Basic trust			
Wanting closeness with people	.19*	.00	.38**
Having positive feelings toward parents	.20*	.05	.32**
Regarding oneself as optimist	.19*	.07	.31*
A streak of discipleship			
Wanting to find a great purpose, goal, or leader to which one could feel dedicated	.29***	.39**	.20
Having had persons in one's life (outside family) influence one a great deal	.19*	.26*	.18
Thinking oneself to be regarded by others as humorous	.18*	.00	.32**

Note.—Biserial correlations.

^a Not verbatim.

^b Incorporated from Shor (1960).

*.10 > p > .05.

**.05 > p > .01.

*** p < .01.

closer study of these items showed that there is a greater degree of involvement and absorption in these experiences than is implied in the concept of role taking as discussed by Sarbin (1950). There is a fading of the differentiation between self and role, as it were, so that the experience takes on new reality or results in a perceived alteration of the mental state, suggestive of the cognition of being in the peak experience, as described by Maslow (1959). The term role absorption seems to be more indicative of the psychological processes here involved.

The second large group of items described above represented earlier experiences of unusual incidents and states as well as the tolerance for such experiences. Grouped together here are items of sleep activity and amnesia based on Shor's (1959) notion of the altered state as a result of the fading of the generalized reality orientation; items based on Orne's (1959) concept of trance logic and tolerance for logical inconsistencies; and items based on the old notion of dissociation. As pointed out earlier (Ås et al., 1962), a closer analysis of these different concepts shows that also on a theoretical level they have very much in common.

That trust and confidence in the environment is a characteristic of the hypnotizable person has been indicated by several students in the field (Hilgard, 1961).

The streak of discipleship implies a certain need for deference (White, 1941) as well as parental figure transference and a willingness to relinquish a certain ego control (Gill & Brenman, 1959).

The notion of the willingness to relinquish a certain ego control for the sake of some new experience was derived from Gill and Brenman's (1959) theory of hypnosis as a regression in the service of the ego. In this connection it is of interest to note that among the 23 significant items, the items of tolerance for regressive-aggressive experiences were not found. Thus, it appears that in the female subjects studied, it is not so much the tolerance for impulsive regressive acts that is related to hypnotizability. It is more the tolerance for primary-process colored experiences as exemplified by the absorption experiences as well as by the experiences of unusual inci-

dents and states. This kind of regression may be more in line with the kind of primitivization concept proposed by Meares (1957).

The preceding tentative analysis may be summarized as follows: The findings indicate that the hypnotizable young college girl has had earlier experiences of a changing self with changing social situations; of imaginative situations taking on reality character; and of mental absorption to the degree of feeling the state of consciousness change. She is not against being influenced by others. Further, she has had earlier unusual experiences, involving amnesia, logical inconsistencies and dissociation. As a matter of fact, she wishes to get beyond the world of reason and logic and experience something new and different. She has a confident and trustful attitude toward other people, she is willing to give up some ego control for new experiences, and she may carry a longing for dedication to some cause greater than herself.

This description of the hypnotizable person makes good sense when seen in relation to the hypnotic situation itself. The very agreement to let oneself be hypnotized would seem to imply a certain trust in the hypnotist and a willingness to relinquish or relax control, and let oneself be influenced by the hypnotist's suggestions. Further, during the induction and following it, it is very much a question of focusing and becoming absorbed to the extent that the mental state alters. The experiences of a changing self with changing situations and of imaginative situations taking on reality character are very much implied in the hypersuggestibility usually associated with hypnosis.

The fact that the suggested psychological dimensions of the hypnotizable person also make sense when applied to the hypnotic situation points to the possibility that the separation between hypnotizability on the one hand, and characteristics of the hypnotizable person on the other, is artificial. A breakdown of this traditional barrier would facilitate a conception of hypnosis, not as a special peculiar thing as often seems to be implied, but as a normal personality process, special only in the sense that it represents an unusual combination of situational, personal, and interpersonal factors which separately or in

other configurations are also present in other experiences and behaviors.

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